Settings

Board: NUCLEO-L4R5VI
These *should* be all the settings you need to set in the .ioc file.

System Core
- GPIO
  - GPIO
    - PB7: GPIO output (Blue LED)
    - PB14: GPIO output (Red LED)
    - PD0/PG6: GPIO input, Pull-up (Card Detect) UNUSED, BREAKS STUFF
  - SDMMC (once enabled)
    - PC8: Pull-up
    - PC12: Pull-up
    - PD2: Pull-up
- SYS: Serial Wire (Nucleo uses Trace Asynchronous Sw)

Connectivity
- LPUART1: Mode = Asynchronous
  - DMA Settings: Add -> LPUART1_RX. Mode: Circular
  - Parameter Settings:
    - Baud Rate: 9600 Bits/s
    - Word Length: 8 bits (including Parity)
- SDMMC1: Mode = SD 1 bit
  - Parameter Settings:
    - SDMMC clock divide factor: 4
  - Go back to GPIO and set all pins as pull-up.
- SPI1: Mode = Full-duplex master
  - Prescaler (for baud rate): 128 (make sure baud under 1mbit)
  - Parameter Settings: Clock Parameters
    - Clock polarity high
    - Cloch phase 2 edge

Middleware
- FATFS: SD Card

Set Defines

USE_LFN: Enabled with dynamic working buffer on the STACK/HEAP

MAX_SS: 4096?

Platform Settings: Leave as “No Solution”, ignore the warning and click Yes.

Run Clock Configuration Automatic Clock Issues Solver, then set System Clock Mux to PLLCLK.

Test Code

SD Card

User code 0:

```
FATFS myFatFS;
FIL myFile;
UINT myBytes; //# bytes written if error
uint8_t mounted = 0;
uint8_t allGood = 0;
```

User code begin 2:

```
if(f_mount(&myFatFS,SDPath, 1) == FR_OK) // connected successfully
  {
      mounted = 1;
      HAL_GPIO_TogglePin(GPIOB,GPIO_PIN_7); // turn on blue LED

      char myFileName[] = "TEST1.TXT\0"; // works better with upper case?
//    char myFileName[] = "1234567890.CSV\0"; // works better with upper case?

      if(f_open(&myFile, myFileName, FA_WRITE | FA_CREATE_ALWAYS) == FR_OK){
            HAL_GPIO_TogglePin(GPIOB,GPIO_PIN_14); // flash red LED
//          uint8_t myData[] = "Long filenames are so
cool\r1,2,3,4,5\n6,7,8,9,10\0"; //
            char myData[] = "test,test\n\0"; //

            if(f_write(&myFile, myData, sizeof(myData), &myBytes) == FR_OK){
  //        if(f_write(fp, buff, btw, bw))
//          if(f_write(&myFile, &bigData, 1024, &myBytes) == FR_OK){
                  HAL_GPIO_TogglePin(GPIOB,GPIO_PIN_7); //flash blue LED
                  allGood = 1;
```

```
            }

            f_close(&myFile);
        }
    }
```

WHILE LOOP:

```
        if (mounted)
              HAL_GPIO_TogglePin(GPIOB,GPIO_PIN_7); //flash blue LED
        else
              HAL_GPIO_TogglePin(GPIOB,GPIO_PIN_14);
        if(allGood)
              HAL_Delay(200);
        else
              HAL_Delay(1000);
```